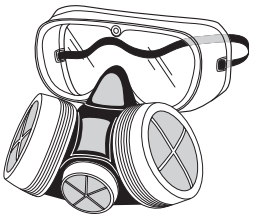
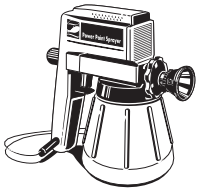
- Do not eat, drink, smoke or apply cosmetics in areas where crystalline silica dust is present. Wash your hands and face outside of dusty areas before performing any of these activities.



An estimated 1.3 million employees in construction and general industry face significant **asbestos** exposure on the job. Heaviest exposure occurs in the construction industry, particularly during the removal of asbestos during renovation or demolition. Employees are also likely to be exposed during the manufacture of asbestos products (such as textiles, friction products, insulation and other building materials) and during automotive brake and clutch repair work. Asbestos is well-recognized as a health hazard and is regulated by OSHA and the U.S. Environmental Protection Agency. Controlling exposure to asbestos can be done through engineering controls, administrative actions and personal protective equipment. Engineering controls include such steps as isolating the source and using ventilation systems. Administrative actions include limiting the workers' exposure time and providing showers. Personal protective equipment includes wearing the proper respiratory protection and clothing. OSHA standards *29 CFR 1910.1001* and *29 CFR 1926.1101* provide information on hazard recognition and controls in general industry and construction, respectively. Additional information can be found at **www.osha.gov/SLTC/asbestos/**.



**Isocyanates** are compounds containing the isocyanate group (–NCO). Isocyanates react with compounds containing alcohol (hydroxyl) groups to produce polyurethane polymers, which are components of polyurethane foams, thermoplastic elastomers, spandex fibers and polyurethane paints. Isocyanates are the raw materials used for all polyurethane products. Jobs that may involve exposure to isocyanates include painting, foam-blowing, and the manufacture of many products, such as chemicals, polyurethane foam, insulation materials, surface coatings, car seats, furniture, foam mattresses, under-carpet padding, packaging materials, shoes, laminated fabrics, polyurethane rubber, adhesives and other polyurethane products. Health effects of isocyanate exposure include irritation of skin and mucous membranes, chest tightness, and difficulty breathing. Isocyanates are classified as potential human carcinogens and are known to cause cancer in animals. The main effects of overexposure are occupational asthma and other lung problems, as well as irritation of the eyes, nose, throat and skin. Isocyanate is a chemical type. Specific isocyanates have different exposure limits. For example, Toluene-2,4-diisocyanate (TDI) has a ceiling limit of 0.02 ppm or 0.14 mg/m$^3$. Methylene bisphenyl isocyanate (MDI) has a ceiling limit of 0.02 ppm or 0.2 mg/m$^3$, and methyl isocyanate has a PEL of 0.02 ppm or 0.05 mg/m$^3$ and has a skin designation, signifying the need to use proper hand protection. These limits are located in *29 CFR 1926.55 Appendix A* and *29 CFR 1910.1000 Table Z-1*. Employers must provide a working environment with exposure below established safe limits, preferably eliminating hazardous exposure altogether. Additional information on hazard recognition and control can be found at **www.osha.gov/SLTC/isocyanates/**.

**Chromium VI (CrVI)** compounds, often called hexavalent chromium, exist in several forms. Industrial uses of hexavalent chromium compounds include chromate pigments in dyes, paints, inks and plastics; chromates added as anticorrosive agents to paints, primers and other surface coatings; and chromic acid electroplated onto metal parts to provide a decorative or protective coating. Hexavalent chromium can also be formed when performing "hot work" such as welding on stainless steel or melting chromium metal. In these situations the chromium is not originally hexavalent, but the high temperatures involved in the process result in oxidation that converts the chromium to a hexavalent state. Workers who breathe hexavalent chromium compounds at their jobs for many years may be at increased risk of developing lung cancer. Breathing high levels of hexavalent chromium can irritate or damage the nose, throat and lungs. Irritation or damage to the eyes and skin can occur if hexavalent chromium contacts these organs in high concentrations or for a prolonged period of time. Controlling exposure to hexavalent chromium can be done through engineering controls, administrative actions and personal protective equipment. Engineering controls include isolating the source and using ventilation systems. Administrative actions include limiting the workers' exposure time and providing showers. Personal protective equipment includes wearing the proper respiratory protection and clothing. OSHA standards *29 CFR 1910.1026* and *29 CFR 1926.1126* provide information on hazard recognition and controls in general industry and construction, respectively. Additional information can be found at: **www.osha.gov/SLTC/hexavalentchromium/**.

*Main information resource **www.osha.gov**.*

## Help for Employers

*For more information concerning education, training and interpretations of occupational safety and health standards contact:*


**Education, Training and Technical Assistance Bureau**

Fourth Floor, Old Revenue Building, Raleigh, N.C.
Telephone: 919-807-2875, Fax: 919-807-2876


*For more information concerning occupational safety and health consultative services contact:*


**Consultative Services Bureau**

Third Floor, Old Revenue Building, Raleigh, N.C.
Telephone: 919-807-2899, Fax: 919-807-2902

*Mailing Address:*
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**Printed 10/12**

800 copies of this public document were printed at a cost of $56, or $.07 per copy.